WHAT IS CLAIMED IS:

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1. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality of IDTs which are successively arranged on a piezoelectric substrate along a propagation direction of a surface acoustic wave,

wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

first terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters defining balanced terminals by being connected via a ground or connected in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

wherein in said first and second longitudinally connected resonator type surface acoustic wave filters, each of said plurality of IDTs includes a narrow-pitch electrode finger portion, and the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT, is narrower than that of other electrode finger portions of the IDT; and

the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between said first and second longitudinally connected resonator type surface acoustic wave filters.

2. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality of IDTs successively arranged on a piezoelectric substrate along a propagation direction of a surface acoustic wave, wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

first terminals of said first and second

longitudinally connected resonator type surface acoustic wave filters each arranged to define unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters are arranged to define balanced terminals by being connected via a ground or by being connected in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

wherein in said first and second longitudinally connected resonator type surface acoustic wave filters, each of said plurality of IDTs includes a narrow-pitch electrode finger portion, and the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than that of other electrode finger portions of the IDT; and

the pitch of the electrode fingers in said narrow-pitch electrode finger portion is different between said first and second longitudinally connected resonator type surface acoustic wave filters.

3. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality

of IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

first terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each being arranged to define unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each being arranged to define balanced terminals by being connected via a ground or by being connected in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

wherein in said first and second longitudinally connected resonator type surface acoustic wave filters, each of said plurality of IDTs including a narrow-pitch electrode finger portion, and the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than that of other electrode finger portions of the

IDT; and

the intercentral distance of two adjacent electrode fingers is different between said first and second longitudinally connected resonator type surface acoustic wave filters, at at least at one location.

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4. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality of IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

first terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each is arranged to define unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining balanced terminals by being connected via a ground or by

being connected in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

wherein in said first and second longitudinally connected resonator type surface acoustic wave filters, each of said plurality of IDTs including a narrow-pitch electrode finger portion, and the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than that of other electrode finger portions of the IDT; and

at least one of the intercentral distance of the two adjacent electrode fingers between adjacent IDTs and the intercentral distance of the two adjacent electrode fingers between the narrow-pitch electrode finger portion and the remaining electrode finger portion, is different between said first and second longitudinally connected resonator type surface acoustic wave filters.

5. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality of IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

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first terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining balanced terminals by being connected via a ground or in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

wherein in said first and second longitudinally connected resonator type surface acoustic wave filters, each of said plurality of IDTs including a narrow-pitch electrode finger portion, and the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than that of other electrode finger portions of the IDT; and

said longitudinally connected resonator type surface acoustic wave filter further including at least two of the following features (a) to (d):

(a) the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between said first and second longitudinally connected resonator type surface acoustic wave filters;

(b) the pitch of the electrode fingers in said narrow-pitch electrode finger portion is different between said first and second longitudinally connected resonator type surface acoustic wave filters;

(c) the intercentral distance of two adjacent electrode fingers is different between said first and second longitudinally connected resonator type surface acoustic wave filters, at at least at one location; and

(d) at least one of the intercentral distance of the two adjacent electrode fingers between adjacent IDTs and the intercentral distance of the two adjacent electrode fingers between a narrow-pitch electrode finger portion and the remaining electrode finger portion, is different between said first and second longitudinally connected resonator type surface acoustic wave filters.

6. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first and second longitudinally connected resonator type surface acoustic wave filters each having a plurality of IDTs successively arranged on a piezoelectric substrate

along the propagation direction of a surface acoustic wave, wherein:

said first longitudinally connected resonator type surface acoustic wave filter has a transmission phase that is substantially opposite to a transmission phase of said second longitudinally connected resonator type surface acoustic wave filter;

first terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining unbalanced terminals by being connected in parallel with each other, and second terminals of said first and second longitudinally connected resonator type surface acoustic wave filters each defining balanced terminals by being connected via a ground or by being connected in series with each other, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of said first and second longitudinally connected resonator type surface acoustic wave filters has, in each of the plural IDTs thereof, a chirp type electrode finger portion, wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is linearly changed along the propagation direction of a surface acoustic wave; and

the configuration of said chirp type electrode finger

portion is different between said first and second longitudinally connected resonator type surface acoustic wave filters.

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7. A longitudinally connected resonator type surface acoustic wave filter comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the phase of the second IDT, an unbalanced terminal extending from the second IDT, a balanced terminal extending from each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is made narrower than that of other electrode finger portions of the IDT; and

the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between a portion where the first and second IDTs are adjacent to each other, and a portion where the second and third IDTs are adjacent to each other.

8. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the phase of the second IDT, an unbalanced terminal extending from the second IDT, and a balanced terminal extending from each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is made narrower than that of other electrode finger portions of the IDT; and

the pitch of the electrode fingers in said narrow-pitch electrode finger portion is different between a portion where the first and second IDTs are adjacent to each other, and a portion where the second and third IDTs are adjacent to each other.

9. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the phase of the second IDT, an unbalanced terminal extending from the second IDT, and a balanced terminal extending from each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is made narrower than that of other electrode finger portions of the IDT; and

denoting a middle point of said second IDT as a center, the distance between two adjacent electrode fingers is different between opposite sides of said center, at least at one location.

10. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the

phase of the second IDT, an unbalanced terminal extending from the second IDT, and a balanced terminal extending from each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is made narrower than that of other electrode finger portions of the IDT; and

the intercentral distance of two adjacent electrode fingers between adjacent IDTs, and/or the intercentral distance of two adjacent electrode fingers between a narrow-pitch electrode finger portion and the electrode finger portion other than the narrow-pitch electrode finger portion, are different between the opposite sides of the second IDT.

11. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the phase of the second IDT, an unbalanced terminal extending from the second IDT, and a balanced terminal extending from

each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is made narrower than that of other electrode finger portions of the IDT; and

said longitudinally connected resonator type surface acoustic wave filter further including at least two of the following features (a) to (d):

(a) the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between the portion where the first and second IDTs are adjacent to each other, and the portion where the second and third IDTs are adjacent to each other;

(b) the pitch of electrode fingers in said narrow-pitch electrode finger portion is different between the portion where the first and second IDTs are adjacent to each other, and the portion where the second and third IDTs are adjacent to each other;

(c) denoting the middle point of said second IDT as a center, the distance between two adjacent electrode fingers is different between opposite sides of said center, at least at one location; and

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(d) the intercentral distance of two adjacent electrode fingers between adjacent IDTs, and/or the intercentral distance of two adjacent electrode fingers between the narrow-pitch electrode finger portion and the electrode finger portion other than the narrow-pitch electrode finger portion, are different between the opposite sides of the second IDT.

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12. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the first and third IDTs have an opposite phase to the phase of the second IDT, an unbalanced terminal extending from the second IDT, and a balanced terminal extending from each of the first and third IDTs, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of said IDTs includes a chirp type electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is linearly changed along the propagation direction of a surface acoustic wave; and

the configuration of said chirp type electrode finger

portion is different between a portion where the first and second IDTs are adjacent to each other, and a portion where the second and third IDTs are adjacent to each other.

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13. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which has been divided into two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than the pitch of the other electrode finger portion of the IDT; and

the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between a portion where the first and second IDTs are adjacent to each other,

and a portion where the second and third IDTs are adjacent to each other.

14. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which is divided into the two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than the pitch of the other electrode finger portion of the IDT; and

the pitch of the electrode fingers in said narrow-pitch electrode finger portion is different between a portion where the first and second IDTs are adjacent to each other, and a portion where the second and third IDTs are

adjacent to each other.

15. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which is divided into the two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than the pitch of the other electrode finger portion of the IDT; and

denoting a middle point of said second IDT as a center, the distance between two adjacent electrode fingers is different between opposite sides of said center, at least at one location.

16. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which is divided into the two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than the pitch of the other electrode finger portion of the IDT; and

the intercentral distance of the two adjacent electrode fingers between adjacent IDTs, and/or the intercentral distance of the two adjacent electrode fingers between the narrow-pitch electrode finger portion and the electrode finger portion other than the narrow-pitch electrode finger portion, are different between opposite sides of the second IDT.

17. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which is divided into the two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

each of the IDTs includes a narrow-pitch electrode finger portion wherein the pitch of one electrode finger portion from the adjacent IDT-side end of said each IDT is narrower than the pitch of the other electrode finger portion of the IDT; and

said longitudinally connected resonator type surface acoustic wave filter further comprising at least two of the following features (a) to (d):

(a) the duty of the electrode fingers in said narrow-pitch electrode finger portion is different between a portion where the first and second IDTs are adjacent to each

other, and a portion where the second and third IDTs are adjacent to each other;

(b) the pitch of the electrode fingers in said narrow-pitch electrode finger portion is different between the portion where the first and second IDTs are adjacent to each other, and the portion where the second and third IDTs are adjacent to each other;

(c) denoting a middle point of said second IDT as a center, the distance between two adjacent electrode fingers is different between opposite sides of said center, at least at one location; and

(d) at least one of the intercentral distance of the two adjacent electrode fingers between adjacent IDTs and the intercentral distance of the two adjacent electrode fingers between the narrow-pitch electrode finger portion and the electrode finger portion other than the narrow-pitch electrode finger portion, is different between the opposite sides of the second IDT.

18. A longitudinally connected resonator type surface acoustic wave filter, comprising:

first, second and third IDTs successively arranged on a piezoelectric substrate along the propagation direction of a surface acoustic wave, wherein:

the second IDT is divided into two portions, the first

and third IDTs having an opposite phase to the phase of the second IDT, an unbalanced terminal extending from each of the first and third IDTs, and a pair of balanced terminals extending from the second IDT which is divided into the two portions, whereby said longitudinally connected resonator type surface acoustic wave filter has a balanced-unbalanced conversion function;

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each of said IDTs includes a chirp type electrode finger portion wherein the pitch of one electrode finger portion from an adjacent IDT-side end of said each IDT is linearly changed along the propagation direction of a surface acoustic wave; and

the configuration of said chirp type electrode finger portion is different between a portion where the first and second IDTs are adjacent to each other, and a portion where the second and third IDTs are adjacent to each other.

19. A communication device including a longitudinally connected resonator type surface acoustic wave filter in accordance with any one of claims 1 through 18.